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a first one of the two chambers is formed as a plasma-generating space and contains a radio-frequency electrode;

a second one of the two chambers is formed as a film deposition process space and contains a substrate support mechanism for mounting a substrate;

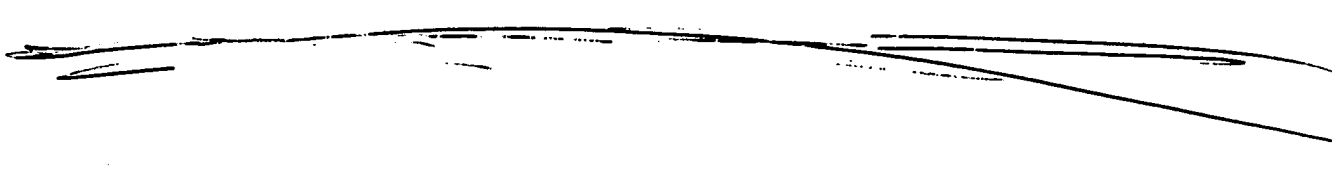
the partitioning wall section includes a plurality of through-holes to allow communication between the plasma-generating space and the film deposition process space;

the partitioning wall section includes an interior space separated from the plasma-generating space and communicating with the film deposition process space through a plurality of diffusion holes;

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means for delivering into the interior space a reactive gas supplied from outside the vacuum vessel, whereby the reactive gas thus supplied into the interior space is fed to the film deposition process space through the plurality of diffusion holes;

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means for delivering a first gas to the plasma-generating space so that it passes through the through-holes at velocity  $u$  such that an equation  $uL/D > 1$  is satisfied where  $L$  represents an effective length of the through-holes and  $D$  represents an inter-diffusion coefficient between the first gas and the reactive gas; and ]

means for supplying an RF power to the radio-frequency electrode for generating a plasma discharge in the plasma-generating space, by which the active species produced in the plasma-generating space are fed into the film deposition process space via the plurality of through-holes formed in the partitioning wall section.



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17. (Amended) A CVD apparatus comprising:

a vacuum vessel having an inside in which plasma is produced to generate active species, and film deposition is performed on a substrate by using the active species and a reactive gas;

B2 an electrically-conductive partitioning wall section formed in the vacuum vessel for separating the inside thereof into two chambers;

a first one of the two chambers is formed as a plasma-generating space and contains a radio-frequency electrode;

a second one of the two chambers is formed as a film deposition process space and contains a substrate support mechanism for mounting a substrate;

the partitioning wall section includes a plurality of through-holes to allow communication between the plasma-generating space and the film deposition process space;

the partitioning wall section includes an interior space separated from the plasma-generating space and communicating with the film deposition process space through a plurality of diffusion holes;

a device for delivering into the interior space a reactive gas supplied from outside the vacuum vessel, whereby the reactive gas thus supplied into the interior space is fed to the film deposition process space through the plurality of diffusion holes;

a device for delivering a first gas to the plasma-generating space so that it passes through the through-holes at velocity  $u$  such that an equation  $uL/D > 1$  is satisfied where  $L$  represents a length of a minimum diameter portion of the through-holes and  $D$  represents an inter-diffusion coefficient between the first gas and the reactive gas; and

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B2 a device for supplying an RF power to the radio-frequency electrode for generating a plasma discharge in the plasma-generating space, by which the active species produced in the plasma-generating space are fed into the film deposition process space via the plurality of through-holes formed in the partitioning wall section.

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22. (Amended) The CVD apparatus as claimed in claim 17, wherein the first gas is oxygen.

B3 23. (Amended) A CVD apparatus as stated in claim 1, further comprising an RF power supply for feeding a cleaning RF power and a switch for connecting the partitioning wall section to the RF power supply with suitable timing so as to produce a cleaning plasma in the film deposition process space.

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Re 1.126

Please add new claim 32:

31 32. (new) A CVD apparatus as claimed in claim 1, wherein the effective length is a length of a minimum diameter portion of the through-holes.

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